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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/642,343 | 08/18/2003 | Josef Giessler | 029777-015 | 1920 |
| 21839 | 7590 | 06/20/2006 | EXAMINER | |
| BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404 | | | ADDISU, SARA | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3722 | |

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/642,343 | Applicant(s) GIESSLER ET AL. | |
| | Examiner Sara Addisu | Art Unit 3722 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 8/18/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed 3/29/06. Currently, claims 1-10 are pending in this application.

Drawings

- The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “the chamfer having an axial extension shorter than an axial extension of a transition from the cutting-face angle to the helix angle” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining

figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 (last two lines) recites " the transition from the front end section of each cutting groove forms a sharp cutting edge with the front end face of the cutting

part". In the remarks filed 3/29/06 (page 12, line 20 through page 13, line 2), Applicant states "... In particular, paragraph [0031] states that the tool according to the invention combines the positive properties of the tools with a large helix angle a clearly positive secondary cutting edge i.e. sharp cutting edge , with stability of a tool with a less positive and optionally even negative cutting edges". Examiner points out that the words "i.e. sharp cutting edge" are not included in the Specification (paragraph 31) therefore the secondary cutting edge is not limited to being "sharp cutting edge". The amendment is therefore considered to be new matter. Furthermore, page 8, paragraph 31, last three lines recites "...depending on the program set, the contour and in any case a gradual transition from the helix angle to the final cutting angles results".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 7 and 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 1 (last two lines) recites " the transition from the front end section of each cutting groove forms a sharp cutting edge with the front end face of the cutting part". In the remarks filed 3/29/06 (page 12, line 20 through page 13, line

2), Applicant states “.. In particular, paragraph [0031] states that the tool according to the invention combines the positive properties of the tools with a large helix angle a clearly positive secondary cutting edge i.e. sharp cutting edge, with stability of a tool with a less positive and optionally even negative cutting edges”. Examiner points out that the words “i.e. sharp cutting edge” are not included in the Specification (paragraph 31) therefore the secondary cutting edge is not limited to being “sharp cutting edge”. Furthermore, page 8, paragraph 31, last three lines recites “..depending on the program set, the contour and in any case a gradual transition from the helix angle to the final cutting angles results”. For the purpose of this Office Action, Examiner assumes that the transition is radiused.

- Claim 7 recites “...the chamfer having an axial extension shorter than an axial extension of a transition from the cutting-face angle to the helix angle”. Further review of the drawings does not explicitly show the claimed subject matter. Also note that there is no explanation or mention of this claimed subject matter in the Specification.

- Claim 8 recites “...cutting-face angle of such cutting groove being equal to the lateral angle”. Further review of the drawings does not

explicitly show the claimed subject matter. Also note that there is no explanation or mention of this claimed subject matter in the Specification.

- Claim 9 recites " The shank end mill according to claim 1 comprising a drilling tool". The limitation of the claimed subject matter is not clear.

- Claim 10 recites "The shank end mill according to claim 1 comprising a milling tool". It is not clear how this further limits the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 8-10, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Britzke et al. (USP 5,609,447), in view of Sato et al. (US Pub No. 2002/0031409).

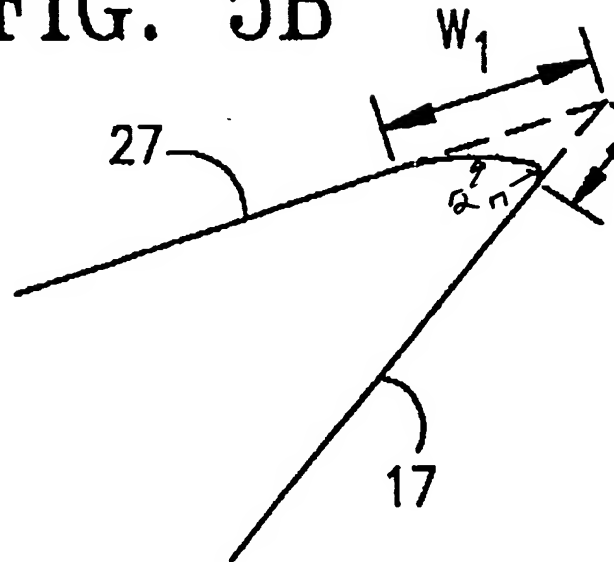
BRITZKE ET AL. teaches a rotary cutting tool/drill (10) comprising a shank (11) and a cutting part (13) disposed at the front end of the shank and defining an axis of rotation (16) and an outer periphery of the cutting part (13) having cutting grooves (15) extending helically to the front end face of the cutting part and each cutting groove disposed rearwardly of the end face defining a helix angle with a plane containing the axis while having cutting edges formed at the edge ('447, Figure 1 and Col. 3, lines 26-38). Regarding claim 1, BRITZKE ET AL. teaches the invention could be used on other tools such as milling cutters therefore, broadly reading the claim, it reads on "a shank end mill" ('447, Col. 5, lines 53-59). BRITZKE ET AL. also teaches in figures 5, the helix angle being larger than a cutting-face angle formed between the end face and a front end section of each cutting groove, the cutting-face angle continuously transforming into the helix angle. BRITZKE ET AL. also teaches in figures 5 the cutting-face angle transforming (via a transition) into the helix angle along a constant radius of curvature (figure 5A) as well as the cutting-face angle transforming into the helix angle along a plurality of radii (figure 5B) whereby a first radius adjoins the cutting edge, and a second radius adjoins the helix angle (the first radius being smaller than the second radius: see figure below). Regarding claims 5 and 6, BRITZKE ET AL. teaches in Figure 5B, the transition between the cutting-face angle and the helix angle extending substantially parallel to the axis for a distance shorter than a diameter of the tool as well as shorter than half the diameter of the tool (all see figure 4 for the diameter of the tool). Regarding claims 9 and 10, BRITZKE ET AL. teaches the rotary cutting g tool comprising a drilling tool or a milling tool ('447, Col. 5, lines 55-59).

However, BRITZKE ET AL. fails to teach the milling cutter being an end mill having main cutting edges extending along an edge of the cutting grooves as well as being arranged substantially in a common plane.

Sato et al. teaches an end mill having a shank (12) and a cutting part having cutting edges extending along an edge of the cutting grooves and being arranged substantially in a common plane ('409, figure 1 and page 1, paragraph 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include cutting edges that extending along an edge of the cutting grooves (and arranged substantially in a common plane) of BRITZKE ET AL's invention, as taught by Sato et al., for the purpose of using the tool in slot or shoulder milling operations ('490, page 1, paragraph 2, lines 6-7) since BRITZKE ET AL. teaches the invention can be used on other tools such as milling cutters ('447, Col. 5, lines 53-59).

FIG. 5B



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Britzke et al. (USP 5,609,447), in view of Sato et al. (US Pub No. 2002/0031409) and further in view of Meece et al. (USP 6,585,460).

The modified device of BRITZKE ET AL. teaches a rotary cutting tool (10) comprising a shank (11) and a cutting part (13) and an outer periphery of the cutting part (13) having cutting grooves (15) extending helically to the front end face of the cutting part, as set forth in the above rejection.

However, the modified device of BRITZKE ET AL. fails to teach the end face and the outer periphery being joined by a chamfer.

MEECE ET AL. teaches a drill having an outer periphery (18) being jointed to the end face via chamfer (90) having axial extension shorter than its axial extension of the transition from the cutting face angle to the helix angle ('460, figures 1 and 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify BRITZKE ET AL.'s invention such that the outer periphery and the end face are joined via chamfer, as taught by MEECE ET AL. for the purpose of providing a cutting land ('460, Col. 3, line 61 to Col. 4, line 5).

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 3722

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sara Addisu
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SA
6/8/06

Monica S. Carter
MONICA CARTER
SUPERVISORY PATENT EXAMINER